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EXAMINER	
PURINTON, BROOKE J	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/564,131	ROSENBERG ET AL.	
	Examiner	Art Unit	
	Brooke Purinton	2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 October 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities:

Paragraph 35 – "quadruple formation" should be "quadrupole formation"

Paragraph 38 – bump 250 is not shown in any of the figures

Paragraph 38 - "Top section 234" needs to be "top section 224"

Paragraph 39 – parts 233, 236, 237 are not shown in the figures

Paragraph 57 - no figures 2e-2f are shown

Appropriate correction is required.

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Figure 1 a, part 11. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claims 31 and 32 are objected to because of the following informalities: "measures structural element" should be "measured structural element". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim13 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 13 recites the limitation "the at least one additional reference structural element" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Kochi et al. (USPAPN 2002/0179812).

Regarding Claim 1, Kochi et al. teach a method for determining a cross sectional feature (any feature with a width or height on a substrate) of a measured structural element (specimen 9) having a sub-micron cross section, the cross section is defined by an intermediate section that is located between a first and a second traverse sections (Figure 11, part s310 and page 2, paragraph 14, between the reference marks), the method comprising the steps of: scanning, at a first tilt state, a first portion of a reference structural element and at least the first traverse section of the measured structural element, to determine a first relationship between the reference structural element and the first traverse section (Figure 11, part s316); scanning, at

a second tilt state, a second portion of a reference structural element and at least the second traverse section of the measured structural element, to determine a second relationship between the reference structural element and the second traverse section (Figure 11, part s316 and page 1, paragraph 11 "detecting data three dimensionally means that the electron beam 7 is irradiated to the specimen holder 3 at different, first and second angles and first and second data of the specimen 9 are detected with the electron beam detecting section 4," second data means second relationship with the reference mark to the substrate); and determining a cross sectional feature of the measured structural element in response to the first and second relationships (page 1, paragraph 13, "shape measuring section 32 for measuring the shape of the specimen 9 on the basis of the data corrected with the data correcting section 31" 3d image ~ cross sectional feature where corrected data comes from 1st and 2nd relationships).

Claim 2- Kochi et al. teach a method of claim 1 wherein the first relationship is a distance between a certain point of the reference structural element and a first edge of the first traverse section (Figures 1a-2b, showing the d12 and d23 and corrected deviation after angle images, used to create figure 2b).

Claim 3- Kochi et al. teach a method of claim 2 wherein the first edge of the measured structural element and the certain point of the reference structural element are substantially located on the same plane (Figure 4c, point where first edge meets reference structural element 40).

Claim 4 – Kochi et al. teach a method of claim 1 wherein a height of the certain point of the reference structural element is much smaller than a height of the measured structural element (Figure 4c, reference template 40 much smaller than 40 a/b measured structural element).

Claim 5- Kochi et al. teach a method of claim 1 further comprising a preliminary step of generating the reference structural element at the vicinity of the measured structural element (Figure 11, s310-s316).

Claim 43-Kochi et al. teach the system of claim 1 wherein the first relationship is determined in response to the scan at the first tilt state and wherein the second relationship is determined in response to the scan at the second tilt state (page 1, paragraph 11).

Claim 44- Kochi et al. teach the method of claim 43 wherein the processor is capable of determining the cross sectional feature in response to additional relationships between the measured structural element and additional reference elements (shape measuring section 32, page 2, paragraph 23).

Claims 9, 15, 25, 37, 42 and 45 are rejected under 35 U.S.C. 102(e) as being anticipated by Takane et al. (USPAPN 2003/0010914).

Regarding Claim 9, Takane et al. teach a method for determining a cross sectional feature of a measured structural element having a sub-micron cross section, the cross section is defined by an intermediate section that is located between a first and a second traverse sections (Figures 1 and 2, sides are traverse sections, depression/protrusion is the cross section), the method comprising the steps of: scanning, at a first tilt state (tilt state is a tilt of 0°), a first portion of a reference element and at least the first traverse section of the measured structural element (Figure 10, part 1002), to determine a first relationship between the reference structural element and the first traverse section and to determine whether to perform an additional scanning (page 5, paragraphs 72-73, and Figure 10, part 1004); scanning, in response to the determination of whether to perform an additional scanning (Figure 10, part 1004), at a second tilt state (Figure 10, part 1004-> 1006), a second portion of a reference element and at least the second traverse section of the measured structural element, to determine a second

relationship between the reference structural element and the second traverse section (page 6,col's 93 – 94: discussion of data 0,1 used for length measurement); and determining a cross sectional feature of the measured structural element in response to at least the first relationship (Figure 10, parts 1013 and 1014).

Claim 10-Takane et al. teach the method of claim 9 wherein performing the second scanning step in response to a feature of the first traverse section (Figure 10, part 1004).

Claim 11-Takane et al. teach the method of claim 9 wherein the feature is an estimated width or an estimated orientation of the first traverse section (oriented ±z e.g. optical axis, "protrusion/depression" determination mentioned above).

Claim 12 - Takane et al. teach the method of claim 11 wherein the orientation is estimated by comparing detection signals generated as a result of a scan of the first traverse section and detection signals generated as a result of at least one scan of a other traverse sections of known width (page 1, paragraph 8).

Claim 13-Takane et al. teach the method of claim 9 wherein at least one additional structural element is provided at a vicinity of the reference structural element and wherein the steps of scanning further comprise scanning the at least one additional structural element to provide at least one additional relationship between the at least one additional reference structural element and a traverse section of the measured structural element (Figure 13).

Claim 14-Takane et al. teach the method of claim 13 wherein the step of determining is further responsive to the at least one additional relationship (Figure 12, Figure 13).

Regarding Claim 15, Takane et al. teach a method for determining a cross sectional feature of a measured structural element having a sub-micron cross section (meant for wires on a semiconductor, paragraph 1 page 1), the cross section is defined by an intermediate section that is located between a first and a second traverse sections (Figure 2, sides are traverses), the method comprising the steps of: scanning, at a first tilt state, at least a first point of a first

reference structural element and at least the first traverse section of the measured structural element, to determine a first relationship between the first reference structural element and the first traverse section (1002 of Figure 10); scanning, at a second tilt state, at least a second point of a second reference structural element and at least the second traverse section of the measured structural element, to determine a second relationship between the second reference structural element and the second traverse section (Figure 10, part 105/1006); determining a cross sectional feature of the measured structural element in response to the first and second relationships (Figure 9 and Figure 10, parts 1008 and 1013, 1014, where multiple cross sectional features of measured structural element are garnered from relationships).

Claim 16-Takane et al. teach the method of claim 15 wherein the measured structural element is positioned between the first and second reference structural elements (Figure 2).

Claim 17- Takane et al. teach the method of claim 15 further comprising a step of measuring a distance between the first and second points (Figure 10, parts 1013-1014).

Claim 18- Takane et al. teach the method of claim 17 wherein the measured structural element is positioned between the first and second reference structural elements and wherein the step of measuring the distance comprising at least one scan of the first and second points and the measured structural element (Figure 2, reference structural elements on either side of measured structural element, distance is traverse section between edges (points aka position coordinates to create image as in Figure 12))

Claim 20- Takane et al. teach method of claim 15 wherein the structural element is line that has a top section and two substantially opposing sidewalls (Figure 2).

Claim 21 - Takane et al. teach the method of claim 15 wherein the structural element is a contact ("protrusion," 1, 9).

Claim 22 – Takane et al. teach the method of claim 15 wherein the structural element is a recess ("depression," 1, 9).

Claim 23 – Takane et al. teach the method of claim 15 wherein at least one additional structural element is provided at a vicinity of the reference structural element and wherein the steps of scanning further comprise scanning the at least one additional structural element to provide at least one additional relationship between the at least one additional reference structural element and a traverse section of the measured structural element (Figures 13 and 19, where more than one depression/protrusion means more information is garnered about the reference structural elements).

Claim 24 –Takane et al. teach the method of claim 23 wherein the step of determining is further responsive to the at least one additional relationship (Figure 19, multiple structures shown with multiple traverse sections, and their respective broad or narrow peaks).

Regarding Claim 25, Takane et al. teach a method for determining a cross sectional feature of a measured structural element having a sub-micron cross section, the cross section is defined by an intermediate section that is located between a first and a second traverse sections (Figures 1 and 2, sides are traverse sections, depression/protrusion is the cross section), the method comprising the steps of: scanning, at a first tilt state, a portion of a reference element and at least the first and second traverse sections (Figure 10, part 1002), to determine at least one relationship between the reference element and the at least one scanned traverse element and to determine whether an additional scanning is required (page 5, paragraphs 72-73, and Figure 10, part 1004); performing additional scanning steps (Figure 10, steps 1006 and/or 1010), in response to the determination; whereas a tilt state of at least one of the additional scans differs from the first tilt state (Figure 10, parts 1005 and 1009); and determining a cross sectional feature of the measured structural element in response to the at least one relationship (Figure 10, parts 1013/1014).

Claim 26 - Takane et al. teach the method of claim 25 wherein the step of scanning comprises scanning with an electron beam that is substantially perpendicular to a measured

object that includes the measured structural element (Figures 3 and Figure 10, page 1, paragraph 8).

Claim 28 – Takane et al. teach the method of claim 25 wherein the determination of whether to perform additional scans is responsive to an estimated orientation of a traverse section (Figure 10, depression/protrusion determination step 1004/1008).

Claim 33- Takane et al. teach the method of claim 25 wherein an additional scanning step for determining the first relationship comprises scanning, at a first tilt state, at least a first point of a first reference structural element and at least the first traverse section of the measured structural element (Figure 2, point being point to the left of the bottom most line of figures, approximately where the down arrow labeled TM1 is pointing, then the traverse section being the peak of the edge).

Claim 34-Takane et al. teach the method of claim 25 wherein an additional step for determining the second relationship comprises scanning, at a second tilt state, at least a point of the reference structural element and at least the first traverse section of the measured structural element (Figure 2, for same reasons as given above in Claim 33, to the HP1/HP2, page 3, paragraphs 51-52).

Claim 35 – Takane et al. teach the method of claim 25 wherein at least one additional structural element is provided at a vicinity of the reference structural element and wherein the steps of scanning further comprise scanning the at least one additional structural element to provide at least one additional relationship between the at least one additional reference structural element and a traverse section of the measured structural element (Figure 13, where reference structural element (i.e. base/substrate layer on either side of protrusion/depression) and additional structural elements to be scanned are shown).

Claim 36 – Takane et al. teach the method of claim 35 wherein the step of determining is further responsive to the at least one additional relationship (Figure 13, bottom half).

Regarding Claim 37, Takane et al. teach a method for determining a cross sectional feature of a measured structural element having a sub-micron cross section, the cross section is defined by an intermediate section that is located between a first and a second traverse sections (Figure 2, between sides), the method comprising the steps of: scanning, at a first tilt state, first portions of a set of reference structural elements and at least the first traverse section of the measured structural element (Figure 10, part 1002), to determine a first set of relationships between reference structural elements of the set of reference structural elements and the first traverse section (getting data, like results shown in Figure 2); scanning, at a second tilt state, second portion of the set of reference structural elements and at least the second traverse section of the measured structural element (Figure 10, part 1005/1006), to determine a second set of relationships between reference structural elements of the set of reference structural elements and the second traverse section (Figure 8, below); determining a cross sectional feature of the measured structural element in response to the first and second sets of relationships (Figure 9, depression/protrusion determination from comparison of half widths from gathered data in first and second scans).

Claim 38 – Takane et al. teach the method of claim 37 wherein the step of determining comprises statistical processing of the relationships of the first set to provide a first relationship (page 8, paragraphs 110-114).

Claim 39-Takane et al. teach the method of claim 37 wherein the step of determining comprises statistical processing of the relationships of the second set to provide a second relationship (page 8, paragraphs 110-114).

Claim 40 – Takane et al. teach the method of claim 37 wherein the set of reference structural elements is positioned at both sides of the measured structural element (Figure 2, either side after protrusion).

Regarding Claim 42, Takane et al. teach a system for determining a cross sectional feature of a structural element having a sub- micron cross section, the cross section is defined by an intermediate section that is located between a first and a second traverse sections (Figure 2, edges as traverse sections, cross section the raised part), the system comprises: means for directing an electron beam towards an inspection object such as to scan, at a first tilt state, a first portion of a reference structural element and at least the first traverse section of the measured structural element, and to scan at a second tilt state, a second portion of a reference structural element and at least the second traverse section of the measured structural element (part 3, deflector 304 and page 3, paragraph 49); at least one detector that is positioned such as to detect electrons emitted from the structural element as a result of an interaction with the electron beam (Figure 3, part 306); and a processor, coupled to the at least one detector and to the directing means such as to process detection signals received from the at least one detector and to (page 3, paragraph 46, "a control processor provided separately from the scanning electron microscope body section may perform such processing as will be described in the following,"): determine a first relationship between the reference structural element and the first traverse section (page 3, paragraph 52); determine a second relationship between the reference structural element and the second traverse section (page 3, paragraph 52, "increase/decrease of the half width" i.e. between the first and second relationships/data collection for images); and determine a cross sectional feature of the measured structural element in response to the first and second relationships (page 3, paragraph 52, "depression/protrusion determination,").

Regarding Claim 45, Takane et al. teach a system for determining a cross sectional feature of a structural element having a sub- micron cross section, the cross section is defined by an intermediate section that is located between a first and a second traverse sections (Figure 2 or Figure 17, both of which are detailed in the spec in regard to this method), the system comprises: means for directing an electron beam towards an inspection object such as to scan

(Figure 16, part 1605, scan coil), at a first tilt state, a first portion of a reference structural element and at least the first traverse section of the measured structural element, and to scan in response to a determination of a processor whether to perform a second scan, at a second tilt state, a second portion of a reference structural element and at least the second traverse section of the measured structural element (Flow of Figure 10); at least one detector that is positioned such as to detect electrons emitted born the structural element as a result of an interaction with the electron beam (Figure 16, part 1603); and a processor, coupled to the at least one detector and to the directing means such as to process detection signals received from the at least one detector and to (Figure 16, 1610 and 1611): determine a first relationship between the reference structural element and the first traverse section (Figure 10, part 1007); determine whether to perform an additional scanning (see Figure 10, part 1008); determine a second relationship between the reference structural element and the second traverse section, if a second scan is required (Figure 10, part 1011); and determine a cross sectional feature of the measured structural element in response to at least the first relationship (Figure 10, part 1012).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 6, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kochi et al. (USPAPN 2002/0179812) in view of Takane et al. (USPAPN 2003/0010914).

Claim 6 – Kochi et al. teach a method according to claim 1.

They fail to teach wherein during the first tilt stage a measurement angle defined between a measured object that includes the measured structural element and an electron beam that scans the measured structural element is substantially ninety degrees.

Takane et al. teach a first scan of an electron beam that scans the measured structural element at a 90 degree angle (Figure 3 and Figure 11).

It is known in the art to scan at ninety degrees and will still give information about the relationship between measured and reference structural element, therefore, it would be obvious to try. Scanning a beam at a 90 degree angle to the reference structural element would yield the predictable results of garnering more information about the specimen and any measured structural elements.

Claim 7 – Kochi et al. teach a method of claim 1.

They fail to teach wherein at least one additional structural element is provided at a vicinity of the reference structural element and wherein the steps of scanning further comprise scanning the at least one additional structural element to provide at least one additional relationship between the at least one additional reference structural element and a traverse section of the measured structural element.

Takane et al. teach wherein at least one additional structural element is provided at a vicinity of the reference structural element and wherein the steps of scanning further comprise scanning the at least one additional structural element to provide at least one additional relationship between the at least one additional reference structural element and a traverse section of the measured structural element (Figure 13).

It would have been obvious to adapt the method of Kochi et al. to the method of Takane et al. since one application of this method is scanning semiconductor substrates, which will have a repeating pattern needing observation not just in a singular instance, but multiple measured structural elements traverse sections to completely inspect the semiconductor disk.

Claim 8- Kochi et al. and Takane et al. teach the method of claim 7.

Kochi et al. fail to teach wherein the step of determining is further responsive to the at least one additional relationship.

Takane et al. teach wherein the step of determining is further responsive to the at least one additional relationship (Figure 13).

Motivation same as given above for Claim 7.

Claims 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takane et al. (USPAPN 2003/0010914).

Claim 19- Takane et al. teach the method of claim 18.

He fails to teach wherein the at least one scan comprises preventing the electron beam to illuminate the measured structural element.

It would have been obvious to one of ordinary skill to skip the measured structural element if the element had a width that was excessively wide and therefore not waste time observing it, since the objective in that case might have been to simply understand if it was protruding or recessing into the reference structural element (flow chart of Figure 10 of Takane et al.). Not illuminating the measured structural element would have yielded the predictable results of saving time when coordinates of the traverse sections are already known.

Claims 27 and 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takane et al. (USPAPN 2003/0010914) in view of Muckenhirn (USPAPN 2003/0168594)

Claims 27 and 28-32 are rendered obvious by the fact that Takane et al. teach the method of claim 25, further teaching wherein the determination of whether to perform additional scans is responsive to an estimated orientation of a traverse section.

Takane et al. fail to teach wherein the determination of whether to perform additional scans is responsive to an estimated width of a traverse section, cross sectional feature, or a threshold including a maximum or minimum width needed.

Muckenhirn teaches a surface analyzing system wherein the determination of whether to perform additional scans is responsive to an estimated width of a traverse section, cross sectional feature, or a threshold including a maximum or minimum width needed (Figure 4, part 416).

One of ordinary skill in the art could have pursued the width dependent observation method of Muckenhirn in order to avoid wasting time or slowing down inspection processes with for example, measured structural elements that are too wide to move along in a manufacturing base, or protrusions, perhaps wires, that are too thin to be operable (Muckenhirn, page 1, paragraph 3).

There would have been a reasonable expectation of success since the observational data garnered from single tilt and multi-tilt images would have allowed a realization of the important characteristics of the wafer, and therefore, the capability to stop processing or continue processing as necessary if the semiconductor characteristics are unsuitable.

<u>Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takane et al. in view of Kochi et al..</u>

Claim 41- Takane et al. teach the method of claim 37.

They fail to teach wherein the set of reference structural elements is positioned at one side of the measured structural element, since the reference structural elements are positioned between the measured structural elements, as per Figure 13.

Kochi et al. teaches a way to create reference points (Figure 4a, 4b).

It would have been obvious to one of ordinary skill to use these reference points created in a way to distinguish a portion of the substrate that is not a measured structural element, since the reference points would be placed in what is a design choice.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brooke Purinton whose telephone number is 571.270.5384. The examiner can normally be reached on Monday - Friday 7h30-5h00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on 571.272.2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Brooke Purinton
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Art Unit 2881
/B. P./
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